

WE CLAIM:

1. A process for inducing proliferation of stem cells comprising administering to cultured stem cells sFRP1 polypeptide or an expression vector comprising the sFRP1 gene or a fragment thereof in a sufficient amount to cause proliferation of the stem cells.
2. The process of claim 1 wherein the stem cells are hematopoietic stem cells.
3. The process of claim 1 wherein the stem cells are embryonic stem cells.
4. A process for inducing proliferation of stem cells comprising culturing the stem cells with a second type of cells wherein the second type of cells express sFRP1 polypeptide.
5. The process of claim 4 wherein the expression is overexpression.
6. The process of claim 4 wherein the second type of cells are stromal cells.
7. The process of claim 4 further comprising administering sFRP1 polypeptide to the stem cells.
8. A method for treating a patient suffering from depletion of a cellular population comprising administering to the patient stem cells that have been expanded according to the method of claim 1.

9. A method for treating a patient suffering from depletion of a cellular population comprising administering to the patient stem cells that have been expanded according to the method of claim 4.
10. The method according to claim 8 wherein said patient suffers from depletion of a cellular population as a result of a disease or treatment thereof.
11. The method of claim 10 wherein the disease is cancer.
12. The method of claim 10 wherein the disease is a blood disorder.
13. The method of claim 10 wherein the disease is an auto-immune disease.
14. The method of claim 10 wherein the treatment comprises chemotherapy or radiotherapy.
15. A method for treating a patient suffering from depletion of a cellular population comprising administering to the patient a pharmaceutical composition comprising sFRP1 polypeptide or an expression vector comprising the sFRP1 gene or a fragment thereof, further comprising a pharmaceutically acceptable carrier in a dosage sufficient to induce proliferation of a cellular population.
16. The method according to claim 15 wherein said patient suffers from depletion of a cellular population as a result of a disease or treatment thereof.
17. The method of claim 16 wherein the disease is cancer.

18. The method according to claim 16 wherein the disease is a blood disorder.

19. The method according to claim 16 wherein the disease is an auto-immune disease.

20. The method of claim 16 wherein the treatment comprises chemotherapy or radiotherapy.

21. A pharmaceutical composition comprising sFRP1 polypeptide or an expression vector comprising the sFRP1 gene or a fragment thereof further comprising a pharmaceutically acceptable carrier.

22. A pharmaceutical composition according to claim 21 in a dosage sufficient to induce proliferation of a cellular population.

23. A process for identifying a compound which induces stem cell proliferation by modulation of sFRP1 polypeptide comprising:

- (a) measuring the proliferative activity of the human sFRP1 polypeptide;
- (b) contacting said polypeptide with said compound; and
- (c) determining whether the activity of said polypeptide is affected by said compound.

24. A process of preparing a pharmaceutical composition which comprises the steps of:

- (a) obtaining a compound by the process of claim 23; and
- (b) admixing said compound with a pharmaceutically acceptable excipient.

25. A process for identifying a compound which induces stem cell proliferation by modulation of sFRP1 polypeptide comprising:

- (a) measuring the binding of sFRP1 polypeptide to a species with which it interacts *in vivo*;
- (b) contacting sFRP1 polypeptide with said compound; and
- (c) determining whether the activity of sFRP1 polypeptide is affected by said compound.

26. A kit for identifying a compound which induces stem cell proliferation comprising:

- (a) sFRP1 polypeptide;
- (b) a species with which sFRP1 polypeptide interacts *in vivo* ;
- (c) means for measuring said interaction; and
- (d) means for determining whether the binding of sFRP1 polypeptide to the species is affected by said compound.